HyperCube Updates

Version 10.80 (09/04/12)

1. Mac and PC: The ability to load TIFF files containing LZW compression has been added. This includes 8 bit gray, 8 bit true color, 16 bit gray, 16 bit component color and 32 float images. It is not possible to save TIFF files with LZW compression.

2. Mac and PC: Bug fix: It's now possible to enable/disable a contiguous interval of spectral bands in menu Windows -> Show Band -> List -> Options.

3. PC: Bug fix: Menu Edit -> Options -> Color Selector… did not properly sync sliders and patch color. Only a bug in PC version.

4. Mac and PC: The statistics region selected via menu Functions -> Classify -> Options -> Stats Region: Class map was not used correctly – gave erroneous message: "Not enough points".

5. Mac and PC: The precision of the output ASCII text when saving a spectral list has been changed from 4 to 6 decimal places for the reflectance values.

6. Mac and PC: National Geospatial Agency (NGA) compliance added to GeoTIFF images.

7. Mac and PC: Bug fix: Menu Functions -> Classify method Mahalanobis did not propagate statistical region names into the final class map. The color of the statistical region was correctly maintained.

8. Mac Intel: Bug fix: Menu Applications -> Radiance -> Plot BB Curve… crashed. This was a bug introduced in version 10.70.

9. Mac and PC: Bug fix: An erroneous error message was given in menu Edit -> Options -> Image to Ref Coords… when switching between UTM and Geographic coordinates.

10. Mac PPC: Bug fix: The Mac Power PC version did not write the CRC field of PNG files in the correct byte order. This caused some commercial applications to fail when reading these files. Only affected PPC version.

Version 10.70 (04/05/12)

1. Mac and PC: Menu item 'Utilities -> ASCII to Library' added. This is the inverse of menu 'Utilities -> Library to ASCII' and the "columns" option selected.

2. Mac and PC: Bug fix: The internal check for wavelengths being monotonic (either increasing or decreasing) sometimes gave an erroneous message. It has been corrected.

3. PC: Improved memory management for the Windows 64 bit version.

4. Mac and PC: A popup menu allowing multiple levels of interpolation added to the load image dialogs for LASF and ASCII Lidar files.

5. Mac and PC: Increased the maximum number of image cube bands to 3072.

6. Mac Intel: Bug fix: The cube file headers (*.hdr) generated by menus 'Applications -> Radiance -> Emissivity' and 'Utilities -> Library to Cube' did not correctly specify the byte order: should be "little endian". The Mac Power PC version was correct.

Version 10.60 (08/15/11*)*

1. Mac and PC: The open file dialog for LASF images has been modified to allow more choices in selecting which value of elevation should be rasterized and an option to suppress certain types of spikes due to vegetation (see latest HyperCube.pdf documentation for details).

2. Mac and PC: Added image scale (mtrs/pixel) annotation to menu Functions -> Plots -> Profile for images that have a geo reference.

3. Mac and PC: Pressing key combination: command 4 on the Mac and Ctrl 4 on the PC when the cursor is positioned over an active (front most) image window will create one or more text windows containing a listing of pixel values surrounding the cursor's position. The display values and the underlying pixels (e.g., 16 bit, float) values are listed in a 15 by 15 array. True color images produce list windows for each color.

4. Mac and PC: The name of the image cube used in menu Classify is now concatenated to the classify output image name.

5. Mac and PC: Bug fix: Longitudes that were exact multiplies of 6 degrees produced an incorrect zone number (off by 1) when displaying UTM coordinates in the Info window.

6. Mac and PC: Bug fix: Latitudes below the equator are now computed correctly as UTM False Northings.

Version 10.51 (05/25/11*)*

1. Mac and PC: Bug fix: Saving contours and class maps as a shape file is now compatible with ESRI ArcMap. Shape files that are geo referenced now include a .prj file describing the coordinate type along with the normal .shp, .shx and .dbf files.

2. Mac and PC: Bug fix: Choosing a new color link image (menu Image -> Convert Image -> New Cube Link) for a cube would crash if the link image was a class map. Choosing this type of selection should not have been available.

3. PC: Bug fix: Crash after Reset button (menu Image -> Filter -> Static 5x5) when filtering a shaded relief (menu Application -> Shaded Relief) of an image.

4. Mac and PC: Bug fix: Spectral library parsing bug. The raw spectral format (simple wavelength:value pairs) was not always recognized when loading a spectral signature from the library.

5. Mac and PC: Bug fix: Clicking within a spectra plot did not go to the correct wavelength:value pairs in the scroll list if the spectra wavelengths were in the order: longer wavelength to shorter wavelength.

6. Mac and PC: Bug fix: Using the Sobel filter (menu Image -> Filter -> Static 5x5) on certain floating data images produced a totally black result.

7. Mac and PC: Number of spectra values per signature increased from 1024 to 3072.

8. PC: Bug fix: Menu Functions -> Classify of a cube against a library (File:Lib) with "Enable dynamic display" checked in the Classify Options produced an updated label with trails. Not an original bug - was introduced in October '09.

Version 10.4 (01/20/11*)*

1. Mac and PC: Bug fix: Loading NITF images containing hyperspectral data had several problems. Those have been remedied.

2. Mac and PC: Bug fix: Saving a contour (Menu -> Applications -> Contour) as a shape file gave an incorrect error message and failed to save. Now corrected.

3. Mac: Bug fix: Menu Image -> Filter -> Dynamic 5x5 did not operate if the image was float or 16 bit. Static 5x5 and PC version okay.

4. Mac and PC: Bug fix: Loading PNG files which contained an alpha channel did not always display correctly.

5. Mac and PC: Added two new functions to menu Functions -> Image Arithmetic: dft_phase(s1) and dft_nterms(s1,n). The first one displays the Fourier frequency

phase spectrum of image s1 and the second function computes the Fourier transform of image s1, keeps the n percent of the greatest magnitude coefficients and inverts the result back to an image. The later demonstrates how few coefficients are needed to maintain a visually acceptable image. Image Arithmetic function ps(s1), which displays the Fourier frequency power spectrum, has been renamed to dft_power(s1) for consistency. However, the old name is also valid.

Version 10.31 (08/27/10*)*

1. PC: Bug fix: Menu Functions -> Classify, Method: Euclidean Distance did not correctly classify or produce correct ROC plots. This was a recently introduced bug and only affected the PC versions.

Version 10.3 (08/25/10*)*

1. Mac and PC: Menu Functions -> Fourier has been modified to permit interactive dynamic filtering (see Dynamic in Fourier Options). When enabled, changing the sliders will continuously update the output window with new results.

2. Mac and PC: Menu Image -> Filter -> Static has additional pre-stored kernels: Sobel x, y and combined xy gradients for 5x5 and 3x3 subset convolutions.

3. Mac and PC: Menu Image -> Filter -> Dynamic has been changed from an interactive 3x3 kernel to an interactive 5x5 kernel that progresses from a low pass Gaussian to a high pass Laplacian convolution.

Version 10.2 (08/01/10*)*

1. Mac and PC: Added Load/Save PNG (Portable Network Graphics) files. Eight and sixteen bit gray and color component are recognized. This includes files containing a palette and those with an alpha channel (transparency) although the alpha byte is ignored. HyperCube.pdf contains the details.

2. Mac and PC: Bug fix: The menu Functions -> Arithmetic, function gray(), did not always return a gray scale image when generating a sequence.

Version 10.1.1 (05/01/10*)*

1. Mac and PC: Bug fix: The recently added menu Utilities -> ASCII LIDAR to LASF did not process negative Z values correctly. Native LASF (non ASCII) files are not affected.

2. Mac and PC: Bug fix: ASCII LIDAR files with variable length records (e.g., differing decimal precision) sometimes caused a crash.

Version 10.1 (04/23/10*)*

1. Mac and PC: New item: Menu Utilities -> ASCII LIDAR to LASF directly converts an ASCII file representing LIDAR data (e.g., X Y Z Intensity) into an LASF file. Allows several options (see HyperCube.pdf documentation).

2. Mac and PC: A code change was made in Save As… LASF which has the effect of causing previously saved images in LASF to now be loaded flipped top to bottom. This change only affects images that did not have any UTM or Geographic reference. This was done to be consistent with having the top of an image representing a maximum in Y when there is no coordinate reference.

3. Mac and PC: A better mathematical method when converting between UTM and Geographic coordinate systems that are defined by RPCs (Rational Polynomial Coefficients); Implemented in menu Edit -> Options -> Geo Coords <--> UTM Coords.

Version 10.0.1 (01/14/10*)*

1. Mac PPC: Bug fix: Menu Image -> Gray Mapping didn't apply the gray map results to the image. This was a recently introduced bug. (Only applicable to the Mac PPC version, Intel Mac and PC not affected).

2. PC: Bug fix: Certain Windows 7 video cards don't support 4 and 8 bit cursor depths correctly. This resulted in a missing cursor (cross) when the mouse was moved over an image window. This has been fixed in both PC versions.

Version 10.0 (12/07/09*)*

1. Mac and PC: Menu Functions -> Mosaic -> Points can now mosaic entire image cubes (i.e., every band). All reference to External Control has been removed since this is accomplished via menu Functions -> Mosaic -> References.

2. PC: Bug fix: The flicker that sometimes occurs when the cursor is placed over a class map region of a cube face has been eliminated.

3. Mac and PC: Bug fix: Choosing 'Countable' as the Classification Match Criteria in Classify Options produced the 'N' worst, not the 'N' best, matches if 'Mahalanobis distance' was the chosen classify Method. Also, corrects Mahalanobis distance when used in generating ROC curves in Classify.

4. Mac and PC: Images may be saved in LAS file format (previously, only Opened).

5. Mac and PC: Menu Utilities -> Merge LAS Files has been added. Two or more LAS files within the same UTM zone can be merged into a new single LAS file.

6. Mac and PC: Menu File -> Load Selection only loads the minimum bounding rectangle (excludes zero region) when the overview represents a LAS file.

7. PC: A five times speedup when loading ASCII Lidar files. Mac version did not have this problem.

8. PC: Bug fix: Menu Image -> Attach -> Data (class map) often chose wrong image type resulting in confusing error messages.

9. Mac and PC: Menu Image -> Attach -> Remove Data can now remove any 16 or 32 bit data attached to a cube image. Previously, limited to single images.

10. Mac and PC: Menu Utilities -> Concatenate -> Cubes can join two in-memory image cubes into one side by side image cube. Previously, only individual bands could be joined.

Version 9.9 (08/26/09)

1. Mac and PC: The latitude/longitude seconds precision shown in menu Options -> Image to Ref has been extended to 4 decimals. This results in much greater accuracy when converting between UTM and Geographics.

2. Mac and PC: Rational Polynomial Coefficients (RPC) have been added to images produced via menu Functions -> Mosaic -> References. They are included in the header if a mosaic or outline image is saved as NITF.

3. Mac and PC:Bug fix: The number of tiles allocated when reading TIFF images has been increased. This fixes a problem encountered when small tiles (e.g., 64x64) occur in large images (20k by 20k).

4. PC:Bug fix: The method for determining whether an 'images' directory exists on a volume would sometimes give an erroneous "Insert Disk" error on program launch.

5. Mac and PC: Saving an image based upon a reduced resolution overview of the image which contains Rational Polynomial Coefficients (RPC) now generates positive line and sample offsets. Previously, negative offsets could occur which some applications objected to.

6. Mac and PC: Menu Windows -> Show Info now displays latitude/longitude in ddmmss.ss and dd.dddddd as well as UTM for any geo referenced image.

7. Mac and PC: Opening LASF files distinguishes between old and new versions of files generated by the commercial Optech Dashmap software. The older Dashmap, version 1, swapped the return and class number fields.

8. Mac and PC:Bug fix: The x,y coordinates in LASF files did not have the correct signed offsets added after scaling which resulted in blank images.

9. Mac and PC: New menu items: Edit -> Options -> Create Geo RPC and Geographic Coords <---> UTM Coords have been added to create Rational Polynomial Coefficients (RPC) for referenced images and to convert between Geographic (lat/long) and UTM coordinate systems.

10. Mac and PC: A new submenu item: Image -> Attach -> Remove Data performs the opposite of the Data submenu item. Any 16 or 32 bit data attached to an image is discarded, keeping only what has been mapped for display. It can be used to convert 16 bits/color to 8 bits/color (i.e., 48 bit color to 24 bit color).